



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,202	12/14/2001	Barbara R. Evans	920976.90199	1198
26710	7590	11/07/2003	EXAMINER	
QUARLES & BRADY LLP 411 E. WISCONSIN AVENUE SUITE 2040 MILWAUKEE, WI 53202-4497			ALEJANDRO, RAYMOND	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 11/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/017,202

Applicant(s)

EVANS ET AL.

Examiner

Raymond Alejandro

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-11 and 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: _____

Art Unit: 1745

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group IV (Claims 12-16) in Paper No. 5 is acknowledged. The traversal is on the ground(s) that "the prior art search for the fuel cell of Group IV (claims 12-16) will necessarily require a search of the fuel cell electrode art and the electrolyte membrane art... Therefore, search and examination of Group I, III and IV can be made without serious burden". This is not found persuasive because the particular search for the elected claims of Group IV (a fuel cell, classified in class 429/42) is not required for non-elected claims, that is, the search required for Groups I-III (including the electrode per se, the method for recovering catalyst as such, the electrolyte for itself, respectively) and V-VI (the method of impregnating bacterial cellulose in isolation and the method for forming the fuel cell by itself, respectively) is not particularly required for fuel cell per se. As admitted by the applicants, the inventive concepts involve the electrode, the membrane and the distinct methods, which are, classified in class 502/100, 502/20, 502/4, 502/7 and 426/12, respectively. Accordingly, serious burden would be raised if the search of all of the inventions (i.e. the electrode per se, the membrane as such, and the methods themselves) was made as required for the separate and distinct inventions.

The requirement is still deemed proper and is therefore made **FINAL**.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 12/14/01 was considered by the examiner.

Art Unit: 1745

Drawings

3. The sheets of drawings filed on 12/14/01 have been accepted.

Specification

4. The abstract of the disclosure is objected to because the abstract is directed to the method for deposition of metals in bacterial cellulose, the method for impregnating bacterial and the method for the construction of the fuel cell, however, the instant claims are drawn to a fuel cell per se. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 15-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claims 15-16 recite the limitation "the support structure" in lines 2. There is insufficient antecedent basis for this limitation in the claim. Since claim 12 contains two different recitations of such limitation, it might be to recognize as to what particular support structure the instant claims are intended to recite.

Art Unit: 1745

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshitake et al 6087032 in view of Kinsley, JR 2002/0096279 further in view of Westland et al 5207826.

The present claims are directed to a fuel cell wherein the disclosed inventive concept comprises the use of bacterial cellulose therein. Other limitations include the platinum group catalyst; the metal salt and the sulfonated polymer.

With respect to claim 12:

Yoshitake et al disclose a fuel cell comprising a membrane electrode polymer, a fuel electrode disposed on one side of the electrolyte, and an air electrode disposed on the other side of the electrolyte (ABSTRACT) wherein the air electrode is made of a gas diffusion electrode having a catalyst covered with a fluorocarbon ion exchange resin (ABSTRACT).

Art Unit: 1745

With respect to claim 13-14:

It is disclosed that the catalyst is made from a platinum group element (COL 6, lines 6-15/EXAMPLES 1-3)

With respect to claim 16:

It is disclosed the use of a fluorocarbon sulfonic acid type ion exchange resin as the ion exchange resin (COL 2, lines 61 to COL 3, line 3).

Yoshitake et al disclose a fuel cell according to the foregoing. However, Yoshitake et al do not disclose specific anode or cathode material.

With respect to claim 12:

Kinsley, JR discloses a fuel cell electrode (CLAIMS 17-19/ CLAIMS 8-10) wherein it is possible to disperse metal fibers in a slurry composed of only water and a high surface area material like bacterial cellulose (SECTION 0023).

In view of the above, it would have been obvious to one skilled in the art at the time the invention was made to use the specific anode or cathode material of Kinsley, JR in the fuel cell of Yoshitake et al as Kinsley, JR teaches that such material improves the electrode making characteristics like uniformity of the dispersion, the wet web strength and the dry strength. Thus, Kinsley JR directly teaches the use of bacterial cellulose for fuel cell electrode purposes as instantly claimed.

Additionally, neither Yoshitake et al nor Kinsley JR teaches the specific membrane material; and the metal disposed in or on the support structure.

With respect to claim 12:

Art Unit: 1745

Westland et al make known that bacterial cellulose can be used as membranes and/or specialty components for fuel cells (COL 2, lines 56-68).

Regarding claim 15:

Westland et al also teach coating metals on bacterial cellulose to produce materials having special electronic properties (COL 2, lines 56-68).

In view of the above, it would have been obvious to one skilled in the art at the time the invention was made to use the specific membrane material of Westland et al in the fuel cell of both Yoshitake et al and Kinsley JR because Westland et al teach specialty products utilizing microbial cellulose including as separation membranes and specialty components for fuel cells. Thus, Westland et al identify membranes and fuel cell components as specialty products utilizing microbial cellulose.

As to the metal disposed on thereon, it would have been obvious to one skilled in the art at the time the invention was made to dispose the metal on the support structure of both Yoshitake et al and Kinsley JR as Westland et al teach that coating metals on bacterial cellulose is good for producing materials having special electronic properties. For instance, fuel cell electrodes and membranes are fuel cell components requiring special electronic properties. Thus, Westland et al's teachings encompass the use of metal-coated bacterial cellulose for electrical-related applications, which may include fuel cells for electrical power generation.

Art Unit: 1745

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (703) 306-3326. The examiner can normally be reached on Monday-Thursday (8:30 am - 7:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Raymond Alejandro
Examiner
Art Unit 1745

A handwritten signature in black ink, appearing to read 'RAM', with a long horizontal line extending to the right.